OMB 412UNI



UNIVERSAL BARGRAPH

- Vertical bargraf 24 LED with display
- Multifunction input (DC, PM, RTD, T/C, DU)
- Digital filters, Tare, Linearization
- Size of DIN 48 x 96 mm
- Power supply 10...30 V AC/DC; 80...250 V AC/DC
- Option
 Comparators Data output Analog output Measured data record

OPERATION

The instrument is set and controlled by five buttons located on the front panel. All programmable settings of the instrument may be performed in three adjusting modes:

LIGHT MENU is protected by optional number code and contains solely items necessary for instrument setting.

PROFI MENU is protected by optional number code and contains complete instrument setting.

USER MENU may contain arbitrary items from the programming menu (LIGHT/ PROFI), which determine the right (see, change). Access w/o password.

Standard equipment is the OM Link interface, which together with operation program enables modification and filing of all instrument settings as well as performing firmware updates (with OML cable). The program is also designed for visualization and filing of measured values from more instruments.

All settings are stored in the EEPROM memory (settings hold even after the instrument is switched off). The measured units may be projected on the display.

OPTION

COMPARATORS are assigned to monitor four or eight limit values with relay output. For each input the user may select an arbitrary number of relays with the regime: LIMIT/BATCH/FROM-TO. The limits have adjustable hysteresis within full range of the display and selectable delay of the switch-on within the range of 0...99 s. Reaching the preset limits is signalled by LED and simultaneously by the switch-on of the relevant relay.

DATA OUTPUTS are for their rate and accuracy suitable for transmission of the measured data for further projection or directly into the control systems. We offer an isolated RS232 and RS485 with the ASCII/MESSBUS/MODBUS/PROFIBUS protocol.

ANALOG OUTPUTS will find their place in applications where further evaluating or processing of measured data is required in external devices. We offer universal analog output with the option of selection of the type of output - voltage/current and the option of assigning it to arbitrary input. The value of analog output corresp. with the displayed data and its type and range are selectable in menu.

MEASURED DATA RECORD is an internal time control of data collection. It is suitable where it is necessary to register measured values. Two modes may be used. FAST is designed for fast storage (40 records/s) of all measured values up to 8 000 records. Second mode is RTC, where data record is governed by Real Time with data storage in a selected time segment and cycle. Up to 266 000 values may be stored in the instrument memory. Data transmission into PC via serial interface RS232/485 and OM Link.

OMB 412UNI



The OMB 412 model series are panel programmable three-color bargraphs with auxiliary display designed for maximum efficiency and user comfort while maintaining its favourable price.

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The OMB 412UNI is a multifunction instrument with the option of configuration for 8 various input options, easily configurable in the instrument menu.

The instrument is based on a single-chip microcontroller with multichannel 4-bit sigma-delta converter, which secures high accuracy, stability and easy operation of the instrument.

OMB 412UNI

DC VOLTMETER AND AMMETER PROCESS MONITOR OHMMETER THERMOMETER FOR Pt/Cu/Ni/THERMOCOUPLES DISPLAY UNIT FOR LINEAR POTENTIOMETERS

STANDARD FUNCTIONS

PROGRAMMABLE PROJECTION

Selection: of input type and measuring range Measuring range: adjustable, either fixed or with automatic change (OHM) Setting: manual, optional projection on the display may be set in menu for both limit values of the input signal, e.g. input 0...10,00 V > 0...850.0 Projection: 24 LED + 3-digit auxiliary display

EXCITATION

Range: 5...24 VDC/1,2 W for feeding sensors and transmitters

COMPENSATION

Of conduct (RTD, OHM): automatic (3- or 4-wire) or manual in menu (2-wire) Of conduct in probe (RTD): internal connection (conduct resistance in measuring head)

Of CJC (T/C): manual or automatic, in menu it is possible to perform selection of the type of thermocouple and compensation of cold junctions, which is adjustable or automatic (temperature of terminals)

FUNCTIONS

Linearization: non-linear signals can be linearized by the means of a linearization table (up to 50 points)

Tare: designed to reset display upon non-zero input signal

Min./max. value: registration of min./max. value reached during measurement Peak value: the display shows only max. or min. value

Mathemat. operations: polynom, 1/x, logarithm, exponential, power, root, sin x

DIGITAL FILTERS

Floating average: from 2...30 measurements Exponential average: from 2...100 measurements Arithmetic average: from 2...100 measurements Rounding: setting the projection step for display

EXTERNAL CONTROL

Lock: control keys blocking Hold: display/instrument blocking Tare: tare activation Resetting MM: resetting min/max value

Number of inputs		1				
DC	Range	optional in config	uration menu			
		±60 mV	> 100 MΩ	Input U		
		±150 mV	> 100 MΩ	Input U		
		±300 mV	> 100 MΩ	Input U		
		±1 200 mV	> 100 MΩ	Input U		
РМ	Range	optional in configuration menu				
		020 mA	< 400 mV	Input		
		420 mA	< 400 mV	Input		
		±2 V	1 MΩ	Input U		
		±5 V	1 MΩ	Input U		
		±10 V	1 MΩ	Input U		
		±40 V	1 MΩ	Input U		
онм	Range	optional in configuration menu with autorange				
		0100 Ω				
		01 kΩ				
		010 kΩ 0100 kΩ				
	Connection	2, 3 or 4 wire				
Pt	Туре	optional in configuration menu				
	Type					
		EU > 100/500/1 000 Ω, 3 850 ppm/°C -50°450°C US > 100 Ω, 3 920 ppm/°C -50°450°C				
		US > 100 Ω, 3 920 ppm/°C -50°450°C RU > 50 Ω, 3 910 ppm/°C -200°1100°C				
		RU > 100 Ω, 3 910 ppm/°C -200°1 100 C RU > 100 Ω, 3 910 ppm/°C -200°450°C				
	Connection	2, 3 or 4 wire				
Ni	Туре	optional in configuration menu				
	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ni 1 000/10 000 with 5 000 ppm/°C -50°250°C				
		Ni 1 000/10 000 with 6 180 ppm/°C -50°250°C				
	Connection	2, 3 or 4 wire				
Cu	Туре	optional in config	uration menu			
		Cu 50/100 with 4		-50°200°C		
		Cu 50/100 with 4		-200°200°C		
	Connection	2, 3 or 4 wire				
т/с	Туре	optional in config	uration menu			
	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	J (Fe-CuNi)		-200°900°C		
		K (NiCr-Ni)		-200°1300°C		
		T (Cu-CuNi)		-200°400°C		
		E (NiCr-CuNi)		-200°690°C		
		B (PtRh30-PtRh6)	300°1 820°C		
		S (PtRh10-Pt)	,	-50°1760°C		
		R (Pt13Rh-Pt)		-50°1740°C		
		N (Omegalloy)		-200°1300°C		
		L (Fe-CuNi)		-200°900°C		
DU	P. supply	2 VDC/6 mA, Potentiometer resistance > 500 Ω				
Ext. inputs		3 inputs, on contact				
		The following fu	nctions can be a	assigned:		
		OFF / HOLD / LO	CK / PASS. / TARE	E / CL. TA. /		

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ΟΡΤΙ	PTION "A"					
DC	Range	optional in configuration menu				
		±0,1 A	< 300 mV	Input I		
		±0,25 A	< 300 mV	Input I		
		±0,5 A	< 300 mV	Input I		
		±1 A	< 30 mV	Input I		
		±5 A	< 150 mV	Input I		
		±100 V	20 MΩ	Input U		
		±250 V	20 MΩ	Input U		
		±500 V	20 MΩ	Input U		

PROJECTION

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Bargraph display: 24 LED Bar color: red/green/orange Auxiliary display: -99...999, single color 7-segment LED Digit height: 9,1mm Display color: red or green Decimal point: adjustable - in menu Brightness: adjustable - in menu

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INSTRUMENT ACCURACY

TC: 50 ppm/°C Accuracy: ±0,1% of range +1 digit (for proj. 9999 and 5 measur./s) ±0,15% of range +1 digit RT RTD. T/C Accuracy of cold junction measur.: ±1,5°C Rate: 0,1...40 measurement/s Overload capacity: 2x; 10x (t < 30 ms) - not for > 250 V and 5 A Resolution (RTD, T/C): 1°/0,1°/0,01°C Resolution (k10, 1/0,110,010 C Line compensation: max. 30 Q (RTD) Cold junction compens.: adjustable -20°...99°C or automatic Linearization: linear interpolation in 50 points (only via OM Link) Digital filters: Exp./Floating/Arithm. average, Rounding Functions: Offset, Min/max value, Tare, Peak value, Mat. operations Data record: measured data record into instrument memory RTC - 15 ppm/°C, time-date-display value < 266k data FAST - display value < 8k data OM Link: company communication interface for operation, setting and update of instruments Watch-dog: reset after 400 ms Calibration: at 25°C and 40 % r.h. COMPARATOR Type: digital, menu adjustable, contact switch-on < 30 ms

Hysteresis mode: switching limit, hysteresis band (Lim and ±1/2 Hys.) and Trysteress mode: synthesis mode synthesis band cliff and synthesis and synthesynthesynthesis and syn output is active

Output: 1...2x relays Form A (250 VAC/30 VDC, 3 A) and 1...2x relays Form C (250 VAC/50 VDC, 3 A); 2x/4x open collector (30 VDC/100 mA); 2x SSR (250 VAC/1A); 2x bistable relays (250 VAC/250 VDC, 3 A/0.3 A)

DATA OUTPUTS

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col: ASCII, MESSBUS, MODBUS RTU, PROFIBUS DP Data format: 8 bit + no parity + 1 stop bit (ASCII) 7 bit + even parity + 1 stop bit (Messbus) Rate: 600...230 400 Baud, 0,0096...12 Mbaud (PROFIBUS) RS 232: isolated RS 485: isolated, addressing (max. 31 instruments) ANALOG OUTPUTS Type: isolated, programmable with a 16-bit D/A converter, output type and range are optional in the menu Non-linearity: 0,1% of range TC: 15 ppm/°C Rate: response to change of value < 1 ms

Ranges: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA (comp. < 600 Ω/12 V or 1 000 Ω/24 V)

EXCITATION

Adjustable: 5...24 VDC/max. 1,2 W

POWER SUPPLY

Range: 10...30 V AC/DC, ±10 %, PF≥0,4, I_{STP}< 40 A/1 ms, isolated 80...250 V AC/DC, ±10 %, PF≥0,4, I_{STP}< 40 A/1 ms, isolated Consumption: < 10,3 W/10,1 VA Power supply is protected by a fuse inside the instrument

MECHANIC PROPERTIES

Material: Noryl GFN2 SE1, incombustible UL 94 V-I Dimensions: 48 x 96 x 120 mm (w x h x d) Panel cutout: 45 x 90,5 mm (w x h)

OPERATING CONDITIONS

Connection: connector terminal blocks, section < 1,5/2,5 mm² Working temperature: -20°...60°C Storage temperature: -20°...80°C Protection: IP64 (front panel only) El. safety: EN 61010-1, A2 Dielectric strength: 4 kVAC per 1 min test between supply and input 4 kVAC per 1 min test between supply and data/analog output 4 kVAC per 1 min test between input and relay output 2,5 kVAC per 1 min test between input and data/analog output Insulation resistance: for pollution degree II, measuring cat. III

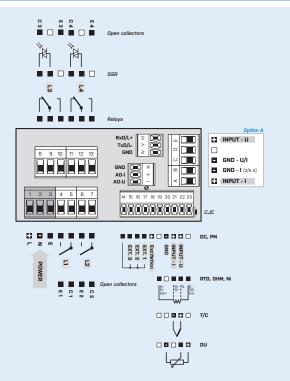
power supply > 670 V (PI), 300 V (DI) input, output, PN > 300 V (PI), 150 V (DI)

EMC: EN 61326-1

EMC: EN 61326-1 Seismic capacity: IEC 980: 1993, par. 6 SW validation: Class B, C in compl. with IEC 62138, 61226

PI - Primary insulation, DI - Double insulation

CONNECTION



*GND (Input + Option A) is galvanically connected with inputs EXT. and the OM Link connector

ORDER CODE

ower supply	1030 VDC/24 VAC
	80250 V AC/DC
leasuring range	standard
	option "A"
omparators	no
	1x relay (Form A)
	2x relay (Form A)
	3x relays (2x Form A + 1x Form C)
	4x relays (2x Form A + 2x Form C)
	2x open collector
	4x open collector
	2x open collector + 2x relays (Form C)
	2x relays (Form C)
	2x SSR
	2x relays, bistable
	1x relay (Form C)
nalog output	no
	yes (compensation < 600 Ω/12 V)
	yes (compensation < 1000 Ω/24 V)
ata output	no
	RS 232
	RS 485
	MODBUS*
	PROFIBUS
citation	yes
ata record	no
	RTC
	FAST
isplay color	red (14 mm)
	green (14 mm)
pecification	customized version, do not fill in



Basic configuration of the instrument is indicated in bold.